

After Hurricane Maria, rhesus macaques in Puerto Rico sought out new social relationships

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Group of macaques sitting together and grooming, with bare landscape in the background. Picture taken May 2018. Credit: Dr. Lauren Brent

Natural disasters have a way of bringing people together to rebuild. Now,

researchers reporting in the journal *Current Biology* on April 8 have found that the same is true for rhesus macaques.

The study reports that after a [major hurricane](#) hit Puerto Rico, macaques living on Cayo Santiago Island became more tolerant of each other and sought new social connections. The findings are based on careful study of social connections among Cayo Santiago Island's macaques before and after Hurricane Maria, a devastating storm that left more than 3,000 people dead.

"The macaques built [new relationships](#) rather than strengthening existing ones and tended to adopt a 'path of least resistance' to forming new connections," says first author Camille Testard, a Ph.D. candidate at the University of Pennsylvania. "These findings are consistent with a strategy to gain tolerance and support from the greatest number of individuals and benefit from broader social integration rather than focusing on reinforcing relationships to key partners. This increased tolerance toward others, including strangers, has also been observed in humans following catastrophic events that impact whole populations widely."

Rhesus macaques are known as sociable animals. But they also live in a highly competitive society and can be very aggressive to other members of their group. When Hurricane Maria hit Puerto Rico, Testard and her colleagues were already studying the monkeys in the field. And, they thought they noticed a shift in the aftermath of the storm. Suddenly, the animals seemed more tolerant of other individuals, including past competitors.



A matched aerial picture of Cayo Santiago after Hurricane Maria, taken in January 2020. Credit: Michelle Skrabut La Pierre from WOM Productions

It prompted them to run some in-depth [social network analysis](#). And those studies showed that the shift in social strategy was quite real indeed. The macaques had forged new social connections after the storm, resulting in a more tolerant society as a whole. The discovery came as something of a surprise.

"We expected the monkeys would use their closest allies to cope with the ecological devastation of the hurricane and so would invest in their existing relationships," says Lauren Brent from Exeter University, co-

senior author on the paper. "Instead, the macaques expanded their social networks and the number of individuals that they tolerated sharing [limited resources](#), like a shady space to sit."



An aerial picture of Cayo Santiago before Hurricane Maria, taken in August 2008. Credit: Dr. Joyce Cohen.

The researchers say that their findings in Puerto Rico help to answer a big outstanding question about what benefits social relationships provide. In future work, they hope to investigate the long-term effects of making new social connections, or failing to do so, in this extreme context. They

want to learn whether those with more connections live longer or have more offspring than those with fewer. Ultimately, the findings in macaques may also help us understand people and how we cope in the midst of extreme challenges, they say.

"Social relationships have a surprisingly large impact on [human health](#) and being in a poor social environment is a high risk factor for humans—remarkably, as high as other health risk factors such as smoking," says James Higham at New York University, a co-author. "How variation in the social environment gets under the skin and impacts our biology remains unclear. Our work on the impacts of changes in sociality following a natural disaster adds yet another element to this complex dynamic."

More information: *Current Biology*, Testard et al.: "Rhesus macaques build new social relationships after a natural disaster"
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